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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,533	10/16/2003	Oliver Luz	10191/3405	2134

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EXAMINER

MURALIDAR, RICHARD V

ART UNIT	PAPER NUMBER
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2838

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/688,533

Applicant(s)

LUZ ET AL.

Examiner

Richard V. Muralidar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-8, 10-12 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8, 10-12 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

NON-FINAL ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: Line 16 appears to be missing the word "of" between "plurality loads". The limitations of line 8 may have been inadvertently duplicated by the limitation of line 17; both appear to be asking for the same "battery master switch and a disconnect fuse." The limitations of line 7 may have been inadvertently duplicated by the limitation of line 18; both appear to be asking for the same "integrated module terminal at which a generator is connectable." Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103[a] which forms the basis for all obviousness rejections set forth in this Office action:

[a] A patent may not be obtained though the invention is not identically taught or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6-8, 10-12, and 15-18 are rejected under 35 U.S.C. 103[a] as being unpatentable over Marusak [U.S. 20040048142] in view of Larson [U.S. 6690140] in further view of Hatton [U.S. 5739737].

With respect to claim 1 [Currently Amended], Marusak teaches a vehicle electrical system [pars. 0001-0002] powered by a battery [Fig. 1 battery 12] to supply a plurality of loads [par. 0011 lines 1-4; par. 0033 lines 1-5; Fig. 2 power feed output

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connectors 80, 82, 84, 86], comprising: an integrated module [Fig. 1, power management and distribution assembly 10] positioned between a positive terminal of the battery and the plurality of loads [par. 0031 lines 1-5], the integrated module having: an arrangement for detecting a state of charge of the battery [par. 0010 lines 1-5, par. 0043 lines 8-12] and including a battery current measuring device [par. 0030 lines 1-6], and a terminal at which a generator is connectable [Fig. 2, the generator/alternator connects to either the battery positive terminal 16 or any of the power connectors 96-110; par. 0034]; one of a battery disconnecting switch [Fig. 2, cutout switch assembly 58; par. 0031] and a battery disconnecting fuse [Fig. 5, any of fuses 70; par. 0008 lines 1-5; par. 0011 lines 1-4; par. 0033] situated between the battery and the terminal; a control unit for power management [Fig. 5, energy management module 56; par. 0030] of the vehicle electrical system; at least one supply output for supplying power to the loads [pars. 0033-0034]; a fuse module [housing portion 18 contains fuses 70, as shown in Fig. 2] having an input, a plurality of supply outputs, and a plurality of fuses [Fig. 2, fuses 90, 92, 94] that connect the plurality of supply outputs to the input [par. 0033]; wherein a terminal of the integrated module is connected to the input of the fuse module, and wherein the plurality of supply outputs of the fuse module provide power to the plurality loads [Figs. 1 and 2, pars. 0031-0033]; one of a battery master switch [Fig. 2, cut-off switch assembly 58; par. 0029] and a fuse [Fig. 5, any from fuse arrangement 70]; wherein the integrated module has a terminal for connection to a generator [Fig. 2, the generator/ alternator connects to either the battery positive terminal 16 or any of the power connectors 96-110; par. 0034], and wherein one of the battery master switch and

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the fuse is situated between the battery and the terminal of the integrated module [pars. 0029-0031]. Marusak does not disclose an electronics unit for at least one of regulation and diagnosis of the generator, or a detection arrangement for diagnosis of a state of at least one of the fuses.

Marusak and Larson are analogous vehicle electrical system modules for managing power.

Larson discloses the vehicle electrical system wherein the integrated module [Fig. 2, ESC 30 is a module] further includes an electronics unit for at least one of regulation and diagnosis of the generator [col. 3 lines 43-53 describes how ESC 30, in combination with other controllers, execute a battery management program that regulates and diagnoses the battery/ pack by making adjustments to the generator output. Since the battery is directly connected to the generator, the generator output is also effectively diagnosed].

At the time of the invention it would have been obvious to one of ordinary skill in the art to add the generator regulation/diagnostics feature found in Larson's module to Marusak's module, for the benefit of providing an integrated means for the vehicle electrical system to regulate and diagnose the battery/generator, and so increase/decrease the rate of charging as required. This is a necessary requirement for any type of vehicle that could conceivably impact human safety [such as today's automobiles] or lead to equipment damage [an overcharged battery could result in an explosion]. Diagnosing the generator's charging of the battery is of paramount importance, as neglecting this can lead to battery overheating, sulfation, and reduced

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battery life- Larson, col. 1 lines 40-65]. Marusak and Larson do not disclose a detection arrangement for diagnosis of a state of at least one of the fuses.

Marusak, Larson, and Hatton are analogous vehicle electrical system modules for managing power.

Hatton discloses an integrated module [Fig. 1, blown fuse indicator module 10] with a detection arrangement for diagnosis of a state of at least one of the fuses [col. 2 lines 47-64; col. 4 lines 18-63].

At the time of the invention it would have been obvious to one of ordinary skill in the art to add Hatton's blown fuse indicator module to Marusak's fused power management module, as modified by Larson.

The benefits for doing so would be to enhance convenience to the user in locating the blown fuse [Hatton, col. 1 lines 24-36], and allow the user/technician to be more effective in diagnosing malfunctions, which would result in reduced downtime for the vehicle and reduced cost to the user.

The following applies to the placement of ALL of the above limitations of amended Claim 1 into one integrated module:

Additionally, the examiner notes that the concept of taking multiple common automobile components and forming them into one module is in general only a simple modification; since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art.

In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 [CCPA 1965]. See MPEP 2144.04.

With respect to claim 2 [Original], Marusak discloses that the arrangement for detecting the state of charge of the battery includes a battery current meter [par. 0030].

With respect to claim 3 [Original], Marusak discloses a battery voltage sensor located outside the integrated module [par. 0041, input pins for voltage sensing, from outside the module], wherein the arrangement for detecting the state of charge of the battery includes a battery voltage meter that cooperates with the battery voltage sensor. [Voltage meters for the visual determination of battery/charging voltage levels are conventional to the automotive industry, as illustrated by Baker (U.S. 5737168), col. 2 lines 19-36].

With respect to claim 6, [Currently Amended] Marusak discloses a switch [Fig. 2, cutout switch assembly 58; par. 0031] provided within the fuse module [housing portion 18 is the module that contains fuses 70, as shown in Fig. 2], wherein the switch enables selective connection and disconnection between at least one of the plurality of fuses and an associated load.

With respect to claim 7 [Original], Marusak discloses a plurality of fuses; wherein the integrated module has a plurality of supply outputs, and wherein the plurality of fuses connect the plurality of supply outputs to the battery, whereby power is provided via the plurality of supply outputs to the plurality of loads [pars. 0031-0033].

With respect to claim 8 [Original], Marusak discloses a switch [Fig. 2, cutout switch assembly 58; par. 0031] provided within the integrated module, wherein the switch enables selective connection and disconnection between at least one of the plurality of fuses and an associated load [pars. 0031-0033].

With respect to claim 10 [Original], Marusak discloses a relay [Fig. 1, relays 64-66]; wherein the integrated module has a terminal for connection to a starter of the vehicle [Fig. 1, battery positive terminal 138; or any of power feed output connectors 80, 82, 84, 86 in Fig. 2], and wherein the relay is situated between the battery and the terminal of the integrated module.

With respect to claim 11 [Original], Marusak discloses a communications interface [par. 0030, CAN interface] for the integrated module; wherein the control unit for power management is in contact with at least one of the plurality of loads of the vehicle electrical system and an additional control unit [par. 0029, energy management subassembly 56] of the vehicle via the communications interface for the integrated module.

With respect to claim 12 [Original], Marusak discloses that the communications interface is a bus interface [par. 0030, CAN interface is a bus interface].

With respect to claim 15 [Original], Hatton discloses that the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses [Fig. 1, blown fuse indicator module 10; col. 2 lines 47-64; col. 4 lines 18-63].

With respect to claim 16 [Original], Marusak discloses that the integrated module further includes a DC-to-DC converter [par. 0043].

With respect to claim 17 [Original], Marusak discloses that the integrated module further includes at least one circuit breaker [Fig. 2, cutout switch assembly 58; par. 0031].

With respect to claim 18 [Original], Marusak discloses that the circuit breaker enables selective connection and disconnection of one of a single load and a plurality of loads from the integrated module [Fig. 2, cutout switch assembly 58; par. 0031. This switch can connect and disconnect single or multiple loads, depending on how many loads are (one or more) are connected to the power management module 10].

Response to Arguments

Applicant's arguments filed 11/20/2006 have been considered but they are not persuasive.

Applicant comments that the references relied upon by the examiner do not disclose monitoring and controlling of the generator available in the vehicle electrical system with the aid of the electronics system. Larson [U.S. 6690140] discloses this in col. 3 lines 43-53, which describes how ESC 30, in combination with other controllers, execute a battery management program that regulates and diagnoses the battery/ pack by making adjustments to the generator output. Since the battery is directly connected to the generator, the generator output is also effectively diagnosed. Proper motivation to combine Larson's regulation/diagnosis feature with Marusak's [U.S. 20040048142] power management module 10 is given in claim 1 above.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard V. Muralidar whose telephone number is 571-272-8933. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl D. Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RVM
2/05/2007


KARL EASTHOM
SUPERVISORY PATENT EXAMINER